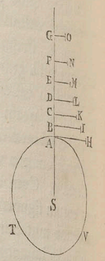
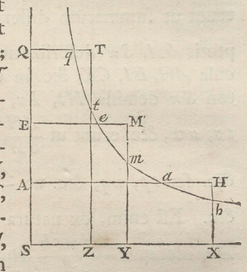
DE MOTU CORPORUM

tionales. Erigantur perpendicula AH, BI, CK, $\mathcal{D}L$, EM, FN, &c. quæ ſint ut denſitates medii in locis A, B, C, $\mathcal{D}$, E, F; & ſpecificæ gravitates in iiſdem locis erunt ut $\frac{AH}{AS}, \frac{BI}{BS}, \frac{CK}{CS}$, &c. vel, quod perinde eſt, ut $\frac{AH}{AB}, \frac{BI}{BC}, \frac{CK}{C\mathcal{D}}$, &c. Finge primum has gravitates uniformiter continuari ab A ad B, a B ad C, a C ad $\mathcal{D}$, &c. factis per gradus decrementis in punctis B, C, $\mathcal{D}$, &c. Et hæ gravitates ductæ in altitudines AB, BC, $C\mathcal{D}$, &c. conficient preſſiones AH, BI, CK, &c. quibus fundum ATV (juxta theorema XV.) urgetur. Suſtinet ergo particula A preſſiones omnes AH, BI, CK, $\mathcal{D}L$, pergendo in infinitum; & particula B preſſiones omnes præter primam AH; & particula C omnes præter duas primas AH, BI; & ſic deinceps: ideoque particulæ primæ A denſitas AH eſt ad particulæ ſecundæ B denſitatem BI ut ſumma omnium $AH+BI+CK+\mathcal{D}L$, in infinitum, ad ſummam omnium $BI+CK+\mathcal{D}L$, &c. Et BI denſitas ſecundæ B eſt ad CK denſitatem tertiæ C, ut ſumma omnium $BI+CK+\mathcal{D}L$, &c. ad ſummam omnium $CK+\mathcal{D}L$, &c. Sunt igitur ſummæ illæ differentiis ſuis AH, BI, CK, &c. proportionales, atque ideo continue proportionales (per hujus lem. I.) proindeque differentiæ AH, BI, CK, &c. ſummis proportionales, ſunt etiam continue proportionales. Quare cum denſitates in locis A, B, C, &c. ſint ut AH, BI, CK, &c. erunt etiam hæ continue proportionales. Pergatur per ſaltum, & ex æquo in diſtantiis SA, SC, SE continue proportionalibus, erunt denſitates AH, CK, EM continue proportionales. Et eodem argumento, in diſtantiis quibuſvis continue proportionalibus SA, $S\mathcal{D}$, SG, denſitates AH, $\mathcal{D}L$, GO erunt continue proportionales. Coeant jam puncta A, B, C, $\mathcal{D}$, E, &c. eo ut progreſſio gravitatum ſpecificarum a fundo A ad ſummitatem fluidi continua reddatur, & in diſtantiis quibuſvis continue proportionalibus SA, $S\mathcal{D}$, SG, denſitates AH, $\mathcal{D}L$, GO, ſemper exiſtentes continue proportionales, manebunt etiamnum continue proportionales. *Q. E. D.*



Corol. Hinc ſi detur denſitas fluidi in duobus locis, puta A & E, colligi poteſt ejus denſitas in alio quovis loco Q. Centro S, aſymptotis rectangulis SQ, SX deſcribatur hyperbola ſecans perpendicula AH, EM, QT in a, e, q, ut & perpendicula HX, MY, TZ, ad aſymptoton SX demiſſa, in b, m & t. Fiat area $YmtZ$ ad aream datam $YmbX$ ut area data $EeqQ$ ad aream datam $EeaA$; & linea Zt producta abſcindet lineam QT denſitati proportionalem. Namque ſi lineæ SA, SE, SQ ſunt continue proportionales, erunt areæ $EeqQ$, $EeaA$ æquales, & inde areæ his proportionales $YmtZ$, $XbmY$ etiam æquales, & lineæ SX, SY, SZ, id eſt, AH, EM, QT continue proportionales, ut oportet. Et ſi lineæ SA, SE, SQ obtinent alium quemvis ordinem in ſerie continue proportionalium, lineæ AH, EM, QT, ob proportionales areas hyperbolicas, obtinebunt eundem ordinem in alia ſerie quantitatum continue proportionalium.

LIBER SECUNDUS.



PROPOSITIO XXII. THEOREMA XVII.

Sit fluidi cujuſdam denſitas compreſſioni proportionalis, & partes ejus a gravitate quadratis diſtantiarum ſuarum a centro reciproce proportionali deorſum trahantur: dico quod, ſi diſtantiæ ſumantur in progreſſione muſica, denſitates fluidi in his diſtantiis erunt in progreſſione geometrica.

Deſignet S centrum, & SA, SB, SC, SD, SE diſtantias in progreſſione geometrica. Erigantur perpendicula AH, BI, CK, &c. quæ ſint ut fluidi denſitates in locis A, B, C, $\mathcal{D}$, E, &c. & ipſius gravitates ſpecificæ in iiſdem locis erunt $\frac{AH}{SAq}, \frac{BI}{SBq}, \frac{CK}{SCq}$, &c. Finge has gravitates uniformiter continuari, primam ab A ad B, ſecundam a B ad C, tertiam a C ad $\mathcal{D}$, &c. Et hæ ductæ in altitudines AB, BC, $C\mathcal{D}$, $\mathcal{D}E$, &c. vel, quod perinde eſt, in diſtantias SA, SB, SC, &c. altitudinibus illis proportionales, conficient exponentes preſſionum